Task Sheet

Trimble Groundworks Boot Camp 2019

Measure Up Validation

Learning Objective

This station will cover the following topics regarding Trimble Groundworks Machine Control System:

- ❑ Validating the machine measure up
- ❑ Adjust measure up to be within tolerance

Equipment

- ❑ Rover w/ data collector OR have a control point provided by Surveyor

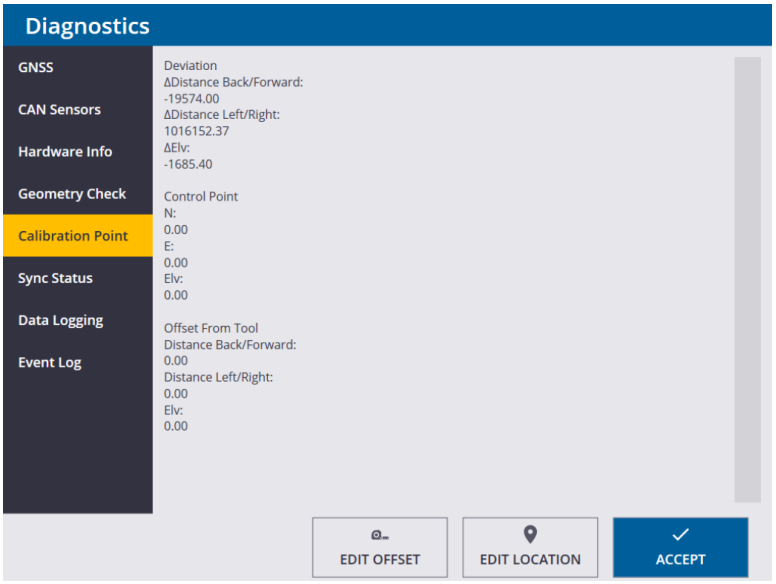
Introduction

Once the measure up is completed, the system accuracy should be validated to ensure it's within tolerance. This task sheet covers a method to validate system accuracy using the Calibration Point feature and requires that the tilt sensor and depth sensor have already been calibrated and that machine can be placed over a control point that was recently measured (within last 15 minutes).

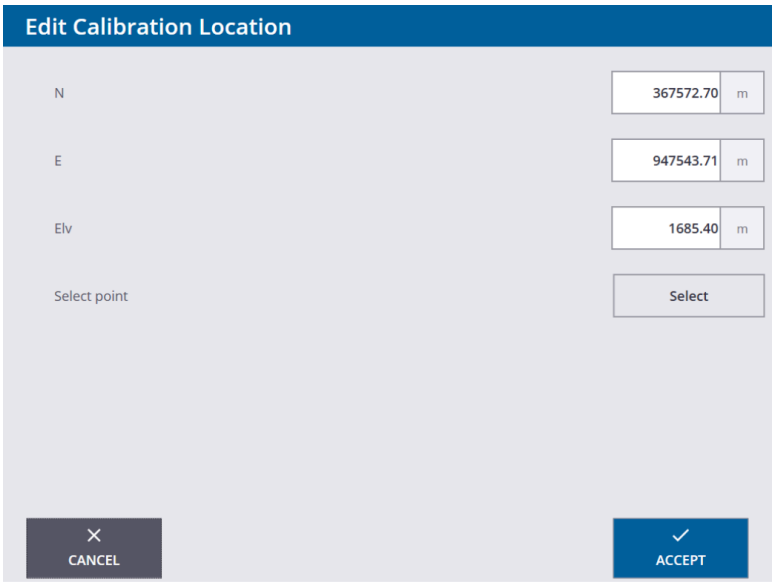
Step 1: Check system accuracy using Calibration Point feature

The **Calibration Point** feature is located in the **Diagnostics** menu of the Groundworks software. Follow these steps to use **Calibration Point** once **GNSS/CAN Sensors** are connected on **Connections** screen:

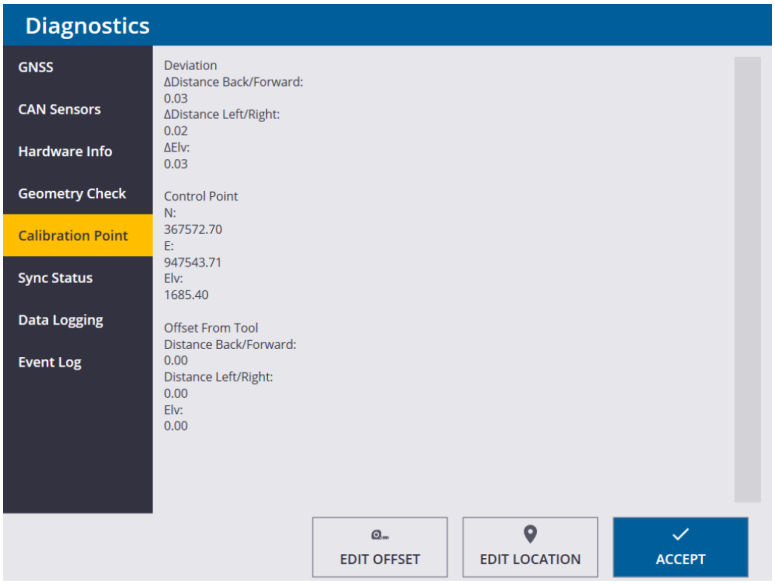
1. Tap ☰ .
2. Select **Diagnostics** / **Calibration Point**.



3. Tap **Edit Location**.
4. Enter the coordinates of a point that can be reached by machine that was measured by a rover using the same .DC file as the machine to be used as the calibration point.



5. Tap **ACCEPT**.
6. Place the tool on the calibration point and check the **Deviation** values:
    a. **ΔDistance Back/Forward**: A positive value means the tool needs to move forward to be on point.
    b. **ΔDistance Left/Right**: A positive value means the tool needs to move right to be on point.
    c. **ΔElv**: A positive value means the tool needs to be raised to be on point.



Step 2: Adjust measure up to be within tolerance

1. Write down the ∆**Elv** value.
2. Go to **Settings / Measure Up** screen and modify the **[B2] Tool Height Offset** value until ∆**Elv** = 0 on the **Calibration Point** screen.
3. Once ∆**Elv** = 0, write down the ∆**Distance Back/Forward** and ∆**Distance Left/Right** values.
4. Go to **Settings / Measure Up** screen and change the **[F1] Tool Offset Behind/In Front** and **[F2] Tool Offset Left Side/Right Side** values until the ∆**Distance Back/Forward** and ∆**Distance Left/Right** = 0.

   Note: If tool offsets need to be adjusted by more than .32ft (10 cm), then the measure up should be reviewed for errors.
5. Turn machine around 180˚ and place tool on same point to verify that deviations are still within tolerance.

Questions

1. Tilt sensor and depth sensor must be calibrated before using the Calibration Point feature?

   TRUE / FALSE
2. Points from the design .VCL can be used as a calibration point?

   TRUE / FALSE